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International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : C07H 23/00, 5/10, 9/04, 5/04, 7/06, 15/207, 7/04 — A1

(11) International Publication Number: WO 00/42057

(43) International Publication Date: 20 July 2000 (20.07.00)

(21) International Application Number: PCT/AU00/00025

(22) International Filing Date: 18 January 2000 (18.01.00)

(30) Priority Data:
PP 8230 18 January 1999 (18.01.99) AU

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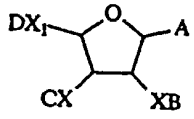
(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: PROTECTING GROUPS FOR CARBOHYDRATE SYNTHESIS



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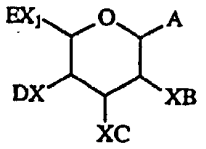

(II)

(57) Abstract

The invention provides collections of orthogonally–protected monosaccharides as universal building blocks for the synthesis of glycoconjugates of non–carbohydrate molecules, neo–glycoconjugates and oligosaccharides. This orthogonal protection strategy allows for the specific deprotection of any substituent on the saccharide ring, and greatly facilitates targeted or library–focused carbohydrate–related syntheses. In particular, the invention provides a universal monosaccharide building block of General Formula (I) or General Formula (II) in which A is a leaving group; X is hydrogen, O, N or N_3; X_1 is hydrogen, $–CH_2O–$, $–CH_2NH–$, $–CH_3$, $–CH_2N_3$ or –COO–; and B, C, D and E are protecting groups that can be cleaved orthogonally, and in which B, C, D and E are absent when X is hydrogen or N_3, and E is absent when X_1 is hydrogen, CH_3 or N_3.